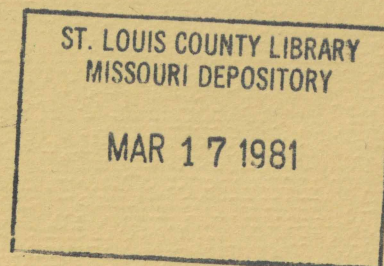


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Missouri Soil and Water Districts Commission Long-Range Program



November, 1980

Purpose of the Commission and the Long-Range Program

Soil is Missouri's richest and most abundant natural resource, but erosion is threatening this important resource by decreasing fertility and productive capability, and by polluting our waters with sediment that carries with it wasted and harmful fertilizers and pesticides.

The Missouri Soil and Water Districts Commission develops programs for the saving of the soil, water, and related natural resources of the state, and provides administrative and financial assistance to the individual soil and water conservation districts within the state.

The Commission seeks to improve its program through active and comprehensive long-range planning. The Long-Range Program of the Missouri Soil and Water Districts Commission is an effort to identify and direct Commission resources to better conserve soil and water within the state.



**Objectives
and Goals
of the
Missouri
Soil and Water
Districts
Commission
Long-Range
Program**

PRIME OBJECTIVE: To insure the productive capability of the soil resource base of Missouri

PRIME GOAL: To effect, by the year 2000, the reduction of erosion on cropland, pasture, and rangeland in state to "T," the amount of soil loss which may be tolerated and still maintain a high level of productivity over a long period of time

**Soil Erosion
Water Quality, and
Flood Control**

OBJECTIVE: Increased financial incentives to landowners to conserve the soil in an effort to counteract market and production incentives which contribute to inappropriate land management

GOAL: To encourage increased federal funding levels for cost-sharing through the Agricultural Conservation Program, Rural Clean Water Program, PL-566 Small Watershed Program, the Rural Conservation and Development Program, and any other such programs

GOAL: To seek appropriations to the Missouri Soil and Water Conservation Cost-Share Program at levels sufficient to carry out the prime objectives of the Long-Range Program

OBJECTIVE: To increase the effectiveness of the existing Watershed Protection and Flood Prevention Program to address the needs of the landowners, and to protect the soil and water resources

GOAL: The Commission will review all existing applications and problem areas throughout the state to promote potential applications that reflect today's program emphasis

OBJECTIVE: To promote soil and water conservation through an education program that heightens the public awareness of the benefits of conservation and clean water, and the consequences of soil erosion and flooding

GOAL: To expand aspects of the Commission education function to assist the districts in their public information efforts

GOAL: To work with the University of Missouri-College of Agriculture as it develops a soil and water conservation course of instruction for inclusion within its curriculum

To encourage a more active leadership role by the University Extension Service's County Agents in local soil and water conservation education

GOAL: To encourage the establishment of conservation education courses in elementary and secondary curricula in accordance with the Missouri Department of elementary and Secondary Education's environmental education objectives stated in the *Missouri Statewide Assessment Project*

Land Conversion and the Loss of Agricultural Lands From Production

OBJECTIVE: To promote the preservation of the productive agricultural lands of Missouri

GOAL: To educate supervisors and landowners to the consequences of short-term conversion of marginal acreages, and to encourage landowners to use the land consistent with long-term productive capabilities in a manner indicative of responsible land management

GOAL: To investigate, on a continuing basis, the issues of prime agricultural land retention with the intent of developing and fully defining the role of the Commission in this important concern

GOAL: To develop a long-term demonstration land use planning model with emphasis on agricultural land retention, and to identify a community/county willing to participate in such a program

GOAL: To propose, as necessary, policies and legislation to further soil and water conservation objectives, erosion reduction, and the protection, conservation, and preservation of the soil and water resource base

OBJECTIVE: To encourage land use planning in urban development to ameliorate the problems of increased erosion and sedimentation during construction periods

GOAL: To encourage units of government to adopt sediment and erosion control, and stormwater management ordinances for urban erosion control

Accelerated Progressive Soil Survey

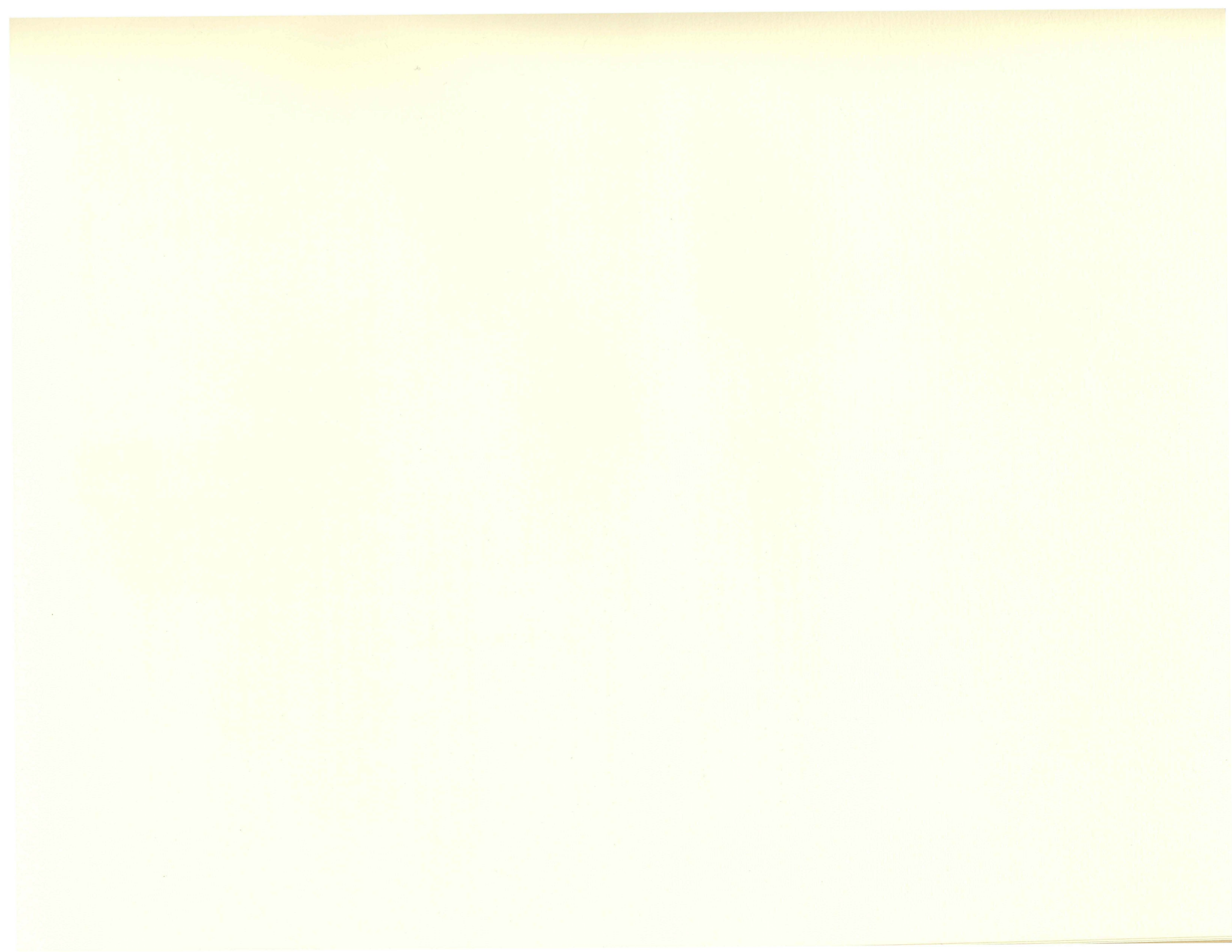
OBJECTIVE: Completion of the Missouri Soil Survey Program by 1989

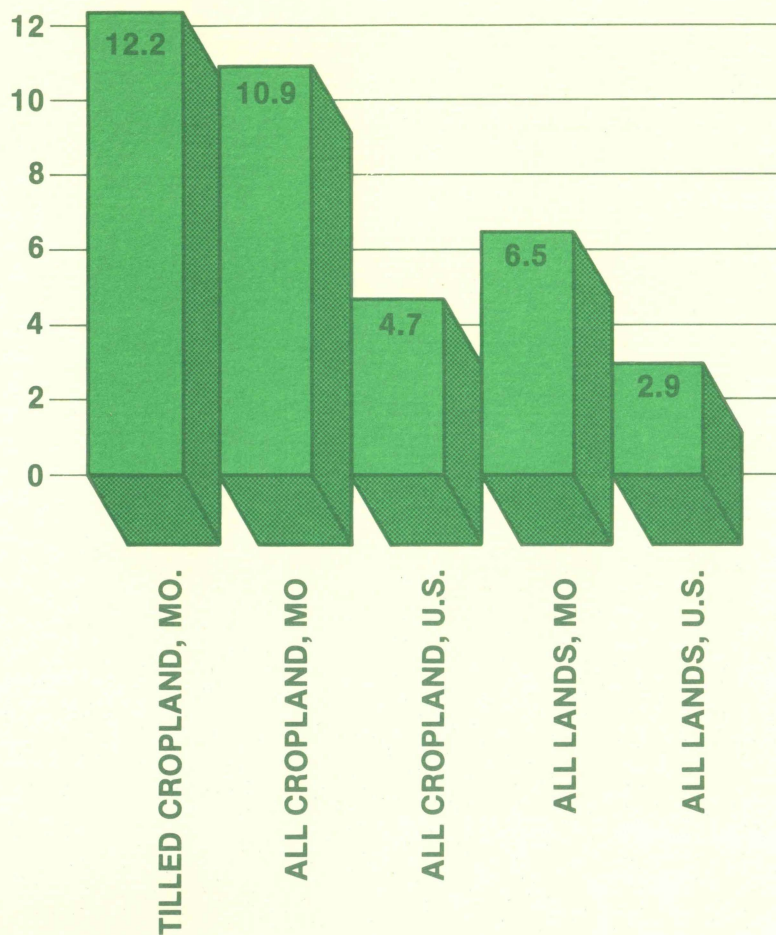
- GOAL:** State appropriations to the Missouri Cooperative Soil Survey in amounts consistent with program objectives
- GOAL:** To seek proper USDA priority upon the needs of the Soil Survey Program so that sufficient resources are devoted to Soil Conservation Service (SCS) to allow that agency to conduct its soils investigations in a manner consistent with acceleration goals
- GOAL:** University involvement is sufficient to provide adequate information/education and research functions to assure that the level of use and quality of product be consistent with program objectives
- GOAL:** To impress individual soil and water conservation districts with the needs for the information contained within a Soil Survey, and to encourage them to support the effort through the allocation of local resources to the program

Technical and Clerical Assistance to the Districts

OBJECTIVE: To enhance district viability

- GOAL:** To encourage increased staffing of USDA-SCS technicians in district offices to better assist the districts in servicing landowner requests for soil and water conservation
- GOAL:** To receive appropriations necessary to staff district offices with sufficient clerical, technical, and managerial personnel to carry out effective district programs of resource conservation
- GOAL:** To expand the supervisor training and education functions of the Commission to include methods and alternatives for more effective district public information/education programs





INTRODUCTION

The above graph represents the average soil loss, expressed in tons of topsoil per acre per year, for selected land use categories. Missouri, with its 12.2 tons per tilled cropland acre per year figure, is second only to Tennessee in having the highest average state rate of erosion in the continental United States. And Missouri is second only to Iowa in the total number of cropland acres with erosion rates above 10 tons per acre per year.

The severe erosion of topsoil in Missouri threatens to decrease the productive capacity of our most important natural resource. The consequences are compounded by "off-site" problems such as sedimentation and pollution of our waters.

In spite of the state's serious erosion problems, the Missouri Soil and Water Districts Commission enters the 1980s with hopeful expectancy. A new public awareness and involvement in the conservation of our soil, water, and related resources are the main sources of hope. The following Long-Range Program, a statement of the Commission's expanded responsibilities, and opportunities for soil erosion control, will help insure the continued high productive levels of our basic soil resource.



**MISSOURI
SOIL AND WATER
DISTRICTS
COMMISSION
LONG-RANGE
PROGRAM**

**Missouri
Soil and Water
Districts
Commission**

**“ABUSE THE WATER AND YOUR CHILDREN WILL
WANDER. DESTROY THE WOOD AND YOUR WORKS
ARE NOTHING. SOUR THE SOIL AND YOU DIE.”**

JENKIN LLOYD JONES

Most writers of current history recognize that the strong and wealthy nations of today are those with abundant natural resources. But, too often, they forget that many of the poor peoples of the earth are poor mainly because their ancestors wasted the natural resources on which present generations must live.

Historical records of the last 6,000 years show that civilized man, with few exceptions, was never able to continue a progressive civilization in one locality for more than 30 to 70 generations (800 to 2,000 years). There were three notable exceptions: the Nile Valley, Mesopotamia, and the Indus Valley. Aside from these cradles of civilization, however, civilized man's dominance over his environment lasted for only a few generations. After a few generations of growth and progress in a favorable environment, his civilizations declined, perished, or were forced to move to new land. The average life span was 40 to 60 generations (1,000 to 1,500 years). In most cases, the more brilliant the civilization, the shorter was its progressive existence. These civilizations declined in the same geographical locations that had nurtured them, mainly because man himself despoiled or ruined the environments that helped him to develop his civilizations.

How did civilized man despoil his favorable environment? He did it mainly by depleting or destroying the natural resources. He cut down or burned most of the usable timber from the forested hillsides and valleys. He overgrazed and denuded the grasslands that fed his livestock. He killed most of the wildlife and much of the fish and other water life. He permitted erosion to rob his farm land of its productive topsoil. He allowed eroded soil to clog the streams and fill his reservoirs, irrigation canals, and harbor with silt. In many cases, he used or wasted most of the easily mined metals or other needed minerals. Then his civilization declined amidst the despoliation of his own creation or he moved on to new land.

Vernon Gill Carter and Tom Dale

The Resources Conservation Act of 1977 (RCA) (Public Law 95-192) required an assessment of the condition of each state's soil, water, and related resources. The ultimate goal was the development of state and national soil and water conservation programs dependent upon and responsive to the needs and recommendations of citizens and users of our most basic natural resources.

In responding to the opportunities provided by the Act, nearly 6,000 Missourians met at more than 550 local and state meetings to discuss the status and condition of the state's resources. Priorities in soil and water resource concerns and problems were set and ranked at these meetings.

The Missouri Soil and Water Districts Commission has recognized the need for developing the first state soil and water conservation long-range program. To do so, the Commission requested the 110 local soil and water conservation districts across the state to prepare District Long-Range Programs that included an evaluation of the condition and situation of the resources within their respective counties, and statements of RCA- and supervisor-perceived problems.

The Commission Long-Range Program is a compilation of the RCA and the District Long-Range Program data as well as an explanation of the Commission's specific functions and role.

RCA-IDENTIFIED PROBLEMS (HIGHEST PRIORITIES)

- 1) Soil erosion
- 2) Food & fiber production
- 3) Water supply
- 4) Land use
- 5) Flooding
- 6) Water quality

DISTRICT LONG-RANGE PROGRAM-IDENTIFIED PROBLEMS (MOST CITED)

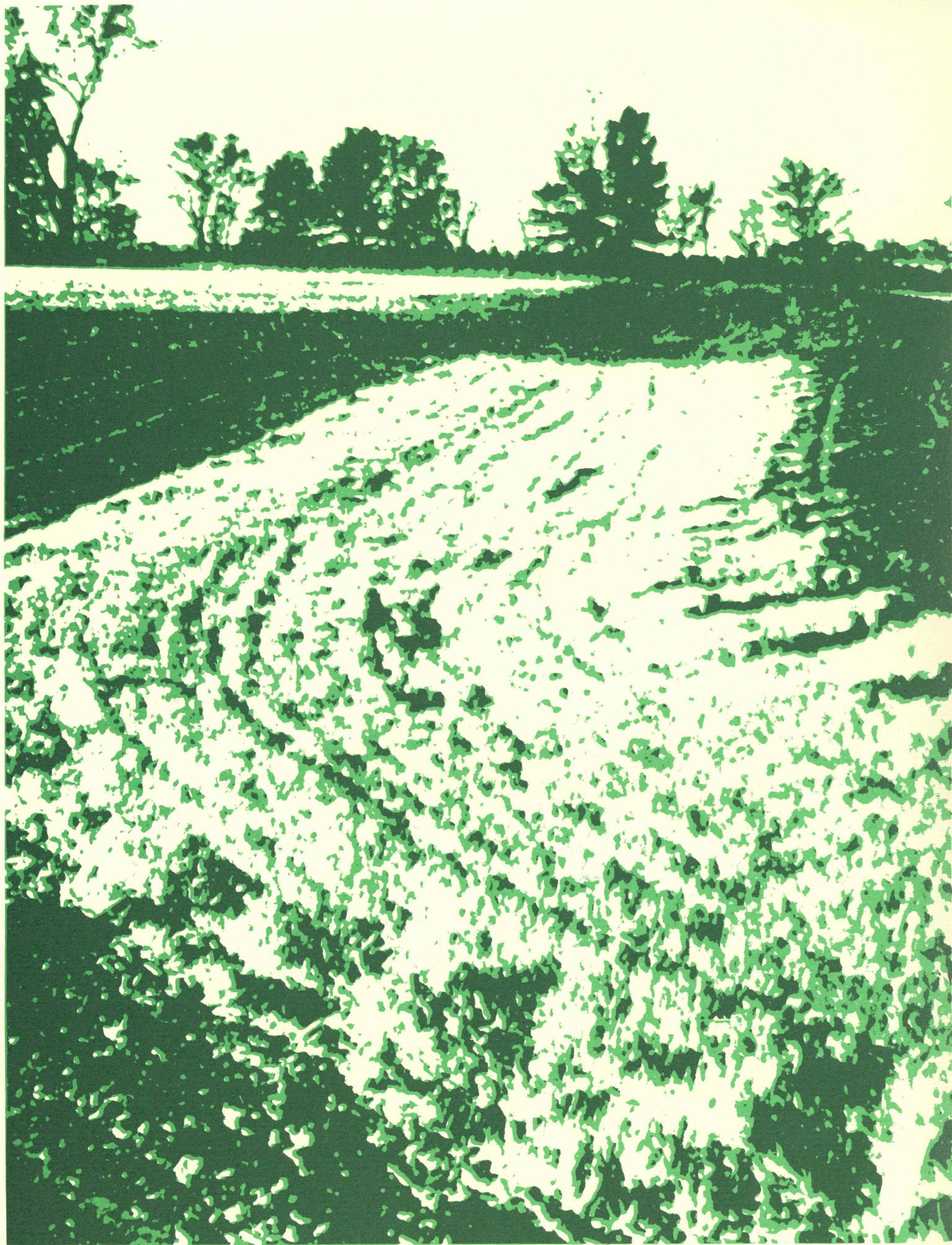
- 1) Lack of awareness of soil and water conservation, soil and water conservation district role, benefits, and consequences
- 2) Soil erosion
- 3) Soil survey needs
- 4) Urban leapfrogging, conversion of agricultural lands to irreversible uses
- 5) Lack of incentives for conservation

From these lists are drawn the objectives of the Missouri Soil and Water Districts Commission Long-Range Program.

The most serious threat to the continued productivity of Missouri's soil resource base is the high average annual soil loss per acre to sheet and rill erosion: 12.2 tons per acre per year on tilled cropland. With the state's economy locked into the soil, this excessively high erosion rate not only jeopardizes the welfare of the 160,000 Missourians who work directly in agricultural production, but it also threatens the livelihood of the 300,000 other Missourians employed in the various other areas of agribusiness. Twenty-five percent of the state's work force is directly dependent upon the capabilities of our soils to continue to produce.

PRIME To insure the productive capability of the
OBJECTIVE: soil resource base of the state

PRIME To effect, by the year 2000, the reduction of
GOAL: erosion on cropland, pasture, and range land in the state
 to "T," the amount of soil loss which may be tolerated
 and still maintain a high level of productivity over a long
 period of time



Soil Erosion, Water Quality, and Flood Control

Soil erosion has long been recognized as one of agriculture's major problems. It is an immediate concern to the farmer in terms of reduced crop yields, increased costs of equipment maintenance, and increased operating costs. Lower water quality, problems with sediment deposition, increased flooding, and a lower economic base within a community all contribute to make it a concern of the general public as well. Soil erosion also may mean future shortages of food and increased consumer costs at the market.

Data from the *1977 Erosion Inventory for Missouri* (Soil Conservation Service of the U.S. Department of Agriculture) show that sheet and rill erosion are major problems on Missouri cropland. Tennessee, Mississippi, and Missouri are the only states to have average annual soil losses from cropland that exceed 10 tons per acre.

Allowable average annual soil loss in Missouri ranges between 2 and 5 tons per acre per year, depending upon the soils. Sheet and rill erosion for tilled land in every river basin delineated by the statewide "208" study exceeds this 2 to 5 tons per acre per year allowable loss.

Sedimentation is a major consequence of excessive erosion. The primary concern in considering sedimentation's impact on water quality is the inorganic materials that are transported by and deposited in drainageways. Additional consequences are increased flooding, sediment-filled lakes and reduced storage capacities, and deteriorated fish and wildlife habitats.

Reduced erosion rates on Missouri's agricultural lands will effectively reduce sedimentation of our waters. Good soil and water conservation techniques will also help control flooding. Increased infiltration of rain water, retention of water on the land, and decreased runoff rates are all spinoff benefits of effective erosion control.

The Missouri Soil and Water Districts Commission acknowledges that the task of reducing erosion to tolerable soil loss limits will require vastly expanded efforts at all levels of society. It also will require full cooperation and coordination to most effectively address the problem of soil erosion and sedimentation.

OBJECTIVE: Increased financial incentives to landowners to conserve the soil in an effort to counteract market and production incentives which contribute to inappropriate land management

GOAL: To encourage increased federal funding levels for cost-sharing through the Agricultural Conservation Program, Rural Clean Water Program, PL-566 Small Watershed Program, the Rural Conservation and Development Program, and any other such programs

The Commission has received authority to administer a state-funded soil and water conservation cost-share program. This is an important first step in the Commission's five-year plan and in Missouri's refocused concern with the quality of the state's environment. The Commission has resolved to administer this program in the most efficient and effective manner possible by placing upon the individual soil and water conservation districts the greatest responsibility for insuring that public monies are best spent to get the most conservation on the land.

GOAL: To seek appropriations to the Missouri Soil and Water Conservation Cost-Share Program at levels sufficient to carry out the prime objectives of the Long-Range Program

The philosophy of the Missouri Soil and Water Conservation Cost-Share Program is that the consumers of agricultural products have a responsibility to help conserve the resource base. The federal- and state-funded programs allow all U.S. citizens to participate in soil conservation; however, the consumers of the \$1 billion worth of Missouri's annual agricultural exports contribute nothing to insure Missouri's continued food and fiber productivity.

GOAL: To investigate and encourage methods by which foreign consumers of Missouri's agricultural products contribute to soil and water conservation.

The Watershed Protection and Flood Prevention Act (Public Law 556, 1955, and amendments) provided for the establishment of local watershed sub-districts. The watershed concept addresses many problems concerning the Commission. Erosion control, water quality, land treatment, flood prevention, water supply, recreation, fish and wildlife habitat improvement, and rural community development are the many benefits of the program.

However, economic developments and landowner attitudes have demanded a reassessment of the philosophy and direction of the Small Watershed Program.

OBJECTIVE: To increase the effectiveness of the existing Watershed Protection and Flood Prevention Program to address the needs of the landowners, and to protect the soil and water resources

GOAL: The Commission will review all existing applications and problem areas throughout the state to promote potential applications that reflect today's program emphasis

Expanding the education role of the Commission is another area to be addressed in the future. Present information program elements include District Supervisor training at the Summer Training Conference, a series of winter regional meetings, and visitations to the individual Districts by the Program staff on a regular basis. A newsletter published by the Commission keeps Supervisors abreast of current

events in soil and water conservation within the state. The Commission provides an overview and coordination function to the Districts in the development of long-range programs, annual plans of action, and annual reports.

OBJECTIVE: To promote soil and water conservation through an education program that heightens the public awareness of the benefits of conservation and clean water, and the consequences of soil erosion and flooding

GOAL: To expand aspects of the Commission education function to assist the districts in their public information efforts

GOAL: To work with the University of Missouri-College of Agriculture as it develops a soil and water conservation course of instruction for inclusion within its curriculum

To encourage a more active leadership role by the University Extension Service County Agents in local soil and water conservation education

GOAL: To encourage the establishment of conservation education courses in elementary and secondary curricula in accordance with the Missouri Department of Elementary and Secondary Education's environmental education objectives stated in the *Missouri Statewide Assessment Project*



Land Conversion and the Loss of Agricultural Lands From Production

DEFINITION OF A FARM: "A PARCEL OF LAND RIPE FOR SUBDIVISION."

EDWARD BELLIS

Practically all of the nation's crop land is privately owned. This fact poses the most difficult problem in altering the land use process, including crop land retention and conversion. Landowners are motivated largely by prices offered them in the markets. This is true of factors as well as products. The reasoning applies to land as well as to corn and other commodities. It would be unusual indeed if a landowner would sell his land at a crop use value if he were offered considerably more at a residential or industrial use value.

This attitude is understandable. Traditional rights in land evolved in a laissez faire manner during the pioneer period of natural resource exploitation in the United States. Fortified by revulsions against feudal tenures experienced in western Europe, our forefathers structured the foundations of a land tenure system that emphasizes individual freedom in the ownership, control, and use of land.

Although our land tenure system recognizes public rights in land as superior to private individual rights, individual landowners hold their rights tenaciously and guard them against public intervention. But individuals hold exclusive rights in land, not absolute rights. Society possesses the capacity to police, tax, or even take title to private land, providing constitutional guarantees of substantial public purpose, due process, and just compensation are satisfied. These rules provide the basis for public intervention as a last resort in the retention of crop land. To be acceptable and effective, however, this avenue must be accompanied by widespread understanding and support.

Another resolution of the problem consists of cooperative and voluntary participation in agricultural retention schemes. Such an approach, to be successful, must also be accompanied by widespread understanding, support, and participation.

John F. Timmons

Urban sprawl and "leapfrogging" of suburbs, scattered residential and recreational homesite trends, highways, and the holding of land for speculation remove between 50,000 and 100,000 acres of Missouri's agricultural land from production each year. Approximately one-third of these acres are considered prime--the best land for agriculture--with few limitations on production and few erosion hazards.

The trend of cropland conversion to irreversible uses, of continued demands for crop production, and to larger farm operations and equipment forces many acres of "marginal" land, often grassland more susceptible to erosion and less productive than the acres it is meant to replace, into tillage.

In turn, forested hillsides are cleared to make up for the loss of pasture to the plow. Again, this is less compatible to efficient and long-term production and is more critical erosively than was its former use and land cover.

Erosion control on converted marginal land is more difficult, less effective, and much more costly than on land better suited to the intensive-management techniques to which they are subjected.

Abandoned, gullied slopes and scrub-covered hillsides attest to past efforts to bring marginal acres into production. The soil resource on these converted acres is often not capable of supporting long-term, intensive uses.

OBJECTIVE: To promote the preservation of the productive agricultural lands of Missouri

GOAL: To educate supervisors and landowners to the consequences and costs of short-term conversion of marginal acreages, and to encourage landowners to use the land consistent with long-term productive capabilities in a manner indicative of responsible land management

GOAL: To investigate, on a continuing basis, the issues of prime agricultural land retention with the intent of developing and fully defining the role of the Commission in this important concern

GOAL: To develop a long-term demonstration land-use planning model with emphasis on agricultural land retention, and to identify a community/county willing to participate in such a program

GOAL: To propose, as necessary, policies and legislation to further soil and water conservation objectives, erosion reduction, and the protection, conservation, and preservation of the soil and water resource base

Erosion on land removed from agriculture is often increased. Where land has been cleared and disturbed for construction, sediment to streams is a serious problem. Urban expansion in the metropolitan areas of the state is contributing to increased erosion and sedimentation, and creating problems with urban stormwater runoff and flooding.

OBJECTIVE: To encourage land-use planning in urban development to ameliorate the problems of increased erosion and sedimentation during construction periods

GOAL: To encourage units of government to adopt sediment and erosion control, and stormwater management ordinances for urban erosion control



Accelerated Progressive Soil Survey

Regrettably, many land decisions in Missouri are made without the benefit of the basic information supplied by a survey of the lands being affected by the decisions. A soil survey report is one of the most valuable resource inventories available.

Prior to the Missouri Soil and Water Districts Commission involvement in the soil survey effort within the state, the task had been carried on by the USDA Soil Conservation Service, the University of Missouri Agricultural Experiment Station, and individual soil and water conservation districts. In 1977, the Soil Conservation Service (SCS) employed 26 soil scientists who mapped several areas of the state. Local districts supplemented this number with 14 other soil scientists. SCS supported the mapping with four soil scientists on the state level to interpret, classify, and correlate information supplied by the field personnel. The University assisted with research to improve soils interpretations.

1977 estimates projected a 30-year completion date for soil surveys in the state. In 1977, the Soil and Water Districts Commission initiated the Accelerated Progressive Soil Survey Program to complete Missouri's soil surveys within 10 years. To date, the Missouri Legislature has responded by appropriating funding only for the addition of 16 soil scientists to complement the personnel funded by SCS and the local districts. State funds also have been provided to the Missouri Extension Service to join the program with an information and education function; the Agricultural Experiment Station for accelerated soils research; and SCS for accelerated map finishing and quality control activities to further support field personnel.

However, the level of support and commitment by all participants in the program acceleration has not been sufficient to realize projected goals.

OBJECTIVE: Completion of the Missouri Soil Survey Program by 1989

GOAL: State appropriations to the Missouri Cooperative Soil Survey in amounts consistent with program objectives

GOAL: To seek proper USDA priority upon the needs of the Soil Survey Program so that sufficient resources are devoted to SCS to allow that agency to conduct its soils investigations in a manner consistent with acceleration goals

GOAL: University involvement is sufficient to provide adequate information/education and research functions to assure that the level of use and quality of product is consistent with program objectives

GOAL: To impress individual soil and water conservation districts with the need for information contained within a Soil Survey, and to encourage them to support the effort through the allocation of local resources to the program



Technical and Clerical Assistance to the Districts

The expanding role of the local soil and water conservation districts that have resulted from increased public recognition of the consequences of soil erosion and the benefits of conservation, the administrative requirements of the Missouri Soil and Water Conservation Cost-Share Program, and the increased activities of the districts themselves have created a new and immediate need for more technical and clerical assistance for effective district program development in many districts.

Currently, the equivalent of a half-time, minimum-wage employee for each district is financed by the Commission. While this service is presently adequate in many districts, it is supplemented in several others by local finances from a variety of sources. These local funds for office staffing provide full-time clerks, technical assistants, information specialists, and one district "manager," whose duties include the development of technical public information, and program development assistance to the Board of Supervisors.

Although in the past the Commission has not been able to demonstrate the need for increased district office staffing across the entire state, the recent growth in public recognition and use of the soil and water conservation districts as a local resource agency demands new efforts in providing adequate professional personnel.

OBJECTIVE: To enhance district viability

GOAL: To encourage increased staffing of USDA-SCS Technicians in district offices to better assist the districts in servicing landowner requests for soil and water conservation

GOAL: To receive appropriations necessary to staff district offices with sufficient clerical, technical, and managerial personnel to carry out effective district programs of resource conservation

GOAL: To expand the supervisor training and education functions of the Commission to include methods and alternatives for more effective district public information/education programs

